

Semester 1 Review Packet

Period _____ Date _____

Evaluate expressions: Substitute values for indicated variables. Follow Order of Operations (GEMDAS) and pay close attention to your signs.

1. $60 + 2(6 - 2) =$ 68

2. $1 + 6(19 - 4^2) + 1 =$ 20

3. $\frac{1}{3} + \left(-\frac{4}{9}\right) =$ $-\frac{1}{9}$

4. $-75.7 + 42.6 =$ -33.1

5. $29 - (-58) =$ 87

6. $-30(-11) =$ 330

7. $35 \div (-5) =$ -7

8. $|-10| =$ 10

9. $3c + bc - 2a$ for $a = 6$, $b = 5$, and $c = 9$ 60
 $3(9) + 5(9) - 2(6)$

Simplify: Expressions are simplified when there are no parentheses and all like-terms have been combined.

$2(9d + 5) =$ $18d + 10$
 $18d + 10$

11. $5x + 2(3x + 2) =$ $11x + 4$
 $5x + 6x + 4$

Translation:

- Words used to describe addition: ADD, SUM, ~~REDDER~~ TOTAL, MORE, ...
- Words used to describe subtraction: DIFFERENCE, SUBTRACT, MINUS, ...
- Words used to describe multiplication: TIMES, PRODUCT, MULTIPLY, TWICE, ...
- Words used to describe division: QUOTIENT, DIVIDED BY, HALF, ...

Write an algebraic expression for the verbal expression or write a verbal expression for the algebraic expression.

12. the sum of 49 and a number y $49 + y$

13. $6x^3 - 1$ SIX TIMES X CUBED MINUS 1

Number Sets: Match the numbers with the appropriate number sets (choices may be used more than once).

14. Rational A, B, C, F

15. Irrational D, E

a. $-\frac{5}{6}$

b. $\sqrt{36}$

c. -4

16. Integer B, C, F

17. Whole B, F

d. $\sqrt{3}$

e. π

f. 5

Properties: Name the property used in each equation by *matching*. Then find the value of the variable n .

18. $n + 9 = 9$ A $n =$ 0
 19. $49n = 0$ E $n =$ 0
 20. $5n = 1$ D $n =$ $\frac{1}{5}$
 21. $5n = 5$ C $n =$ 1
 22. $n + 9 = 0$ B $n =$ -9

- A. Additive Identity
 B. Additive Inverse
 C. Multiplicative Identity
 D. Multiplicative Inverse
 E. Multiplicative Property of Zero

Solving Equations: Solve for the variable.

23. $x - 8 = 2$
 $\begin{array}{r} +8 +8 \\ \hline x = 10 \end{array}$

$x = 10$

24. $|x + 11| = 42$

$x = \{31, -53\}$

$\begin{array}{r} x + 11 = 42 \text{ or } x + 11 = -42 \\ -11 \quad -11 \quad -11 \quad -11 \\ \hline x = 31 \text{ or } x = -53 \end{array}$

25. $\frac{3}{4} + n = \frac{7}{12}$

$n = \frac{-2}{12} = -\frac{1}{6}$

$\begin{array}{r} \frac{9}{12} + n = \frac{7}{12} \\ -\frac{9}{12} \\ \hline n = -\frac{2}{12} \end{array}$

26. $\left(\frac{n}{7}\right) = 6$
 $n = 42$

$n = 42$

27. $96 = 32x$
 $\begin{array}{r} 32 \quad 32 \\ \hline x = 3 \end{array}$

$x = 3$

28. $\left(\frac{3}{7}\right)a = \left(\frac{2}{9}\right)7$
 $a = \frac{14}{27}$

$a = \frac{14}{27}$

29. $3x - 2 = 46$
 $\begin{array}{r} +2 +2 \\ \hline 3x = 48 \\ \frac{3}{3} \quad \frac{3}{3} \\ \hline x = 16 \end{array}$

$x = 16$

30. $-14 + 5z = -z + 16$

$z = 5$

$\begin{array}{r} +z +z \\ \hline -14 + 6z = 16 \\ +14 \quad +14 \\ \hline 6z = 30 \\ \frac{6}{6} \quad \frac{6}{6} \\ \hline z = 5 \end{array}$

31. $10 = -5(2c - 6)$

$c = 2$

$\begin{array}{r} 10 = -10c + 30 \\ -30 \quad -30 \\ \hline -20 = -10c \\ \frac{-20}{-10} \quad \frac{-10}{-10} \\ \hline 2 = c \end{array}$

32. $\frac{a}{-7} + 7 = 5$

$a = -84$

$\begin{array}{r} +7 +7 \\ \hline \frac{a}{-7} = -12 \\ -7 \left(\frac{a}{-7}\right) = (-12) \cdot -7 \\ \hline a = -84 \end{array}$

33. $15(-42x + 40) = 15(-8x + 244)$

$x = -6$

$\begin{array}{r} -630x + 600 = -120x + 3660 \\ +630x \quad +630x \\ \hline 600 = 510x + 3660 \\ -3660 \quad -3660 \\ \hline -3060 = 510x \\ \frac{-3060}{510} \quad \frac{510x}{510} \\ \hline -6 = x \end{array}$

34. Solve for 'y'

$9xy - 10z = 4w$

$\begin{array}{r} +10z +10z \\ \hline 9xy = 4w + 10z \\ \frac{9xy}{9x} = \frac{4w + 10z}{9x} \end{array}$

$y = \frac{4w + 10z}{9x}$

$y = \frac{4w + 10z}{9x}$